

# High Temperature Energy Storage for In Situ Planetary Atmospheric Measurement Technologies, Phase I

Completed Technology Project (2008 - 2008)



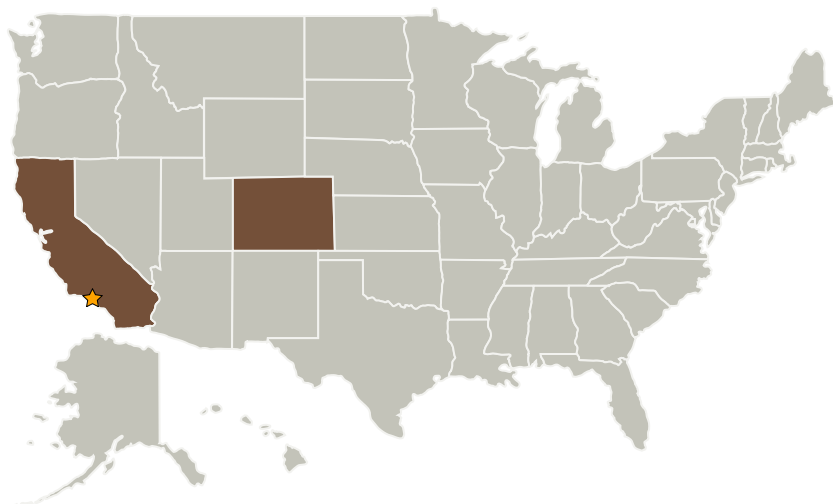
## Project Introduction

Development of energy storage capable of operational temperatures of 380°C and 486

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C with a specific capacity 200 Wh/kg for use as a power source on the Venusian surface and for planetary probes in similar high temperature atmospheres and where ambient pressures of 90 atmospheres are to be expected. This proposal provides for further research and development of the Li(Al)CoS<sub>2</sub> high temperature energy storage chemistry to develop high temperature space energy storage, which will enable the in situ exploration of the atmosphere of Venus and deep atmospheres of Jupiter or Saturn for future NASA missions. This energy storage will provide power for thermal control systems, high temperature electronics and sensors, and high temperature motors and actuators. The approach has a parallel path of evaluation of low melting point electrolyte for 380°C operation and optimization of the 486°C Venus energy storage chemistry. The final task is battery level characterization at various temperatures and discharge rates, with implementation of the previously completed design of a robust battery/cell container and ceramic to metal seals.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Mobile Energy Products, Inc.	Supporting Organization	Industry	Colorado Springs, Colorado

## Primary U.S. Work Locations

California	Colorado
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

David Pickett

## Technology Areas

**Primary:**

- TX03 Aerospace Power and Energy Storage
  - └ TX03.2 Energy Storage
    - └ TX03.2.1 Electrochemical: Batteries